



# UNITED STATES PATENT AND TRADEMARK OFFICE

*gen*

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,504	09/30/2003	George W. Panagotacos	020702	6040

26285 7590 08/04/2006

KIRKPATRICK & LOCKHART NICHOLSON GRAHAM LLP  
535 SMITHFIELD STREET  
PITTSBURGH, PA 15222

EXAMINER

LEE, GUNYOUNG T

ART UNIT PAPER NUMBER

2875

DATE MAILED: 08/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/675,504

Applicant(s)

PANAGOTACOS ET AL.

Examiner

Gunyoung T. Lee

Art Unit

2875

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06/29/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 and 34-56 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 34-56 is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09/30/2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 03/02/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “a light transmitting member transmitting light from the lens” on lines 1-2 of claims 26 and 54 must be shown or the features canceled from the claims. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claim 2 is objected to because of the following informality:

Art Unit: 2875

- On line 1, "the heat" lacks antecedent basis.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 5, 14, 16-22, 24-26, are rejected under 35 U.S.C. 102(e) as being anticipated by Jacob et al. (US 6,871,983).

5. In regard to claims 1, 5, 14, 16-22, 24-26, Jacob et al. disclose a light fixture having:

- A lens (30) having a light entrance end forming a recess;
- A heat sink (22) having an end portion facing the recess;
- A light source (light-emitting diode) (26) (col. 3, lines 62-63) positioned in the recess to transmit light into the lens (Fig. 3) and in thermal communication with the heat sink (col. 3, lines 35-40);
- Wherein the light source (26) is carried by the end portion of the heat sink (22) (col. 3, lines 35-40) and heat generated by the light source (26) must be conducted to the heat sink (22);

- Wherein the lens (30) has a rearward portion extending about the recess, and defining an outer concave surface that tapers in a direction toward the heat sink (22);
- .Wherein the recess contains a light transmitting plastic material (col. 4, lines 56-64) having a index of refraction substantially the same as that of the lens;
- A Holder (14) into which the light entrance end of the lens (30) is receive and extending about the recess;
- Wherein the heat sink (22) comprises a body (and ribs), and the body projects into the holder (14);
- A wire (68) extending between the holder (14) and the heat sink (22);
- Wherein the lens (30), heat sink (22) and holder (14) are coaxial (Fig. 3);
- A light transmitting member (52) transmitting light from the lens (30), in a direction away from the recess.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 6-7, 15, 20-21, 23-25 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Logan et al. (US 6,692,251) in view of Bianchetti et al. (US 6,857,873).

Art Unit: 2875

8. In regard to claims 1, 6-7, 15, 20-21, 23-25 and 27-29, Logan et al. disclose a curing apparatus having:

- A lens (44) having a light entrance end (45)
- A heat sink (36) having an end portion facing the light entrance end (45);
- A plurality of light source (light-emitting diodes) (30) positioned to transmit light into the lens (44) and in thermal communication with the heat sink (col. 8, lines 29-45);
- Wherein the light source (30) is carried by the end portion of the heat sink (36) and heat generated by the light source (30) must be conducted to the heat sink (36);
- Wherein the lens (30) has a rearward portion extending about the recess, and defining an outer concave surface that tapers in a direction toward the heat sink (22);
- A terminal board (34) acting as a heat sink (col. 8, lines 29-45) and obviously being in communication (col. 8, lines 6-9) with the light source (30);
- Where the light source (30) is configured to emit blue light (col. 5, lines 10-12);
- Wherein the lens (44) and the heat sink (36) are coaxial (col. 10, lines 2-3);
- A holder (43) into which the light entrance end (45) of the lens (44) is received;
- Wherein the holder (43) defines an inner wall that tapers (Fig. 2) toward the heat sink (36), the lens (44) defining an outer surface that also tapers toward the heat sink (36) and in adjacent relation to the holder inner wall;
- Wherein the lens is a total internal reflection (TIR) lens (col. 13, lines 52-53);

- A housing (50) extending about the heat sink (36) in coaxial relation therewith (Fig. 2), the holder (43) having an end portion received into the housing (50);
- Wherein the heat sink (36) is a primary heat sink, and there being a secondary heat sink (39) (col. 8, lines 40-52) at an end of the primary heat sink (36) opposite the light entrance end (45) of the lens (44).

9. Logan et al. do not expressly disclose that the light entrance end of the lens has a concave shaped recess facing the light source. Bianchetti et al. disclose an optical system for the polymerization of resins having a lens (40) having a concave shaped recess on a light reentrance end (43), wherein the concave shaped recess is facing the (LED) light source (30). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the concave shaped recess as shown in Bianchetti et al. for the curing apparatus of Logan et al., for the purpose of improving the light transmission efficiency by minimizing the dispersion of the light beam emitted by the LED light source.

10. Claims 2-4 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Logan et al. (US 6,692,251) and Bianchetti et al. (US 6,857,873), as applied to claims 1 and 7 above, and further in view of Teshima et al. (US 4,271,408).

11. In regard to claims 2-4 and 8-9, Logan et al. and Bianchetti et al. disclose the invention substantially as claimed except for a metallic film (layer) formed on the end portion of the terminal board (electrically insulating substrate 34) of Logan et al. having the light sources and facing the light entrance end of the lens. Teshima et al. teach the

Art Unit: 2875

use of a metallic layer (film) (2a, 2b, 2c) (col. 5, lines 41-44) on an insulator substrate (terminal board) (2) in order to electrically connect the light sources (3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the metallic film (layer) as shown in Teshima et al. for the curing apparatus of Logan et al. modified by Bianchetti et al., for the purpose of providing easy installation of plural light sources at the predetermined locations.

12. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Logan et al. (US 6,692,251) and Bianchetti et al. (US 6,857,873), as applied to claims 1 and 7 above, and further in view of Cao (US 6,331,111).

13. In regard to claims 10-13, Logan et al. and Bianchetti et al. disclose the invention substantially as claimed except for three conductive pads formed on a surface of a board with 120 degrees apart, wherein electrical current is supplied to the light source through the board via the conductive pad. Cao discloses a curing light system having three (Fig. 10b) conductive pads (810b) formed on a surface of a board with 120 degrees apart, wherein electrical current (col. 10, lines 33-39) is supplied to the light source through the board via the conductive pad. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the conductive pads as shown in Cao for the curing apparatus of Logan et al. modified by Bianchetti et al., for the purpose of reducing both size and manufacturing cost of the curing apparatus by using a dual (heat sink/electrode) functional component.



***Allowable Subject Matter***

14. Claims 34-56 are allowed.

15. Claim 34 is allowable over the prior art which fails to show or teach a compact illumination assembly having a lens with a light entrance end forming a recess, a heat sink with an end portion facing the lens recess, a lens folder and a light source, wherein the lens folder includes a front portion defining a first cavity for receiving the light entrance end of the lens and a rear portion defining a second cavity for receiving the end portion of the heat sink therein, the lens holder defining an inner wall therein tapering to a smaller diameter in a direction from the front portion of the lens holder to the rear portion of the lens folder, the lens includes a rearward portion defining an outer surface tapering to a smaller diameter in the direction of the heat sink, the tapered outer surface of the lens extends into the rear portion of the lens holder, the tapered outer surface of the lens is adjacent to the tapered inner wall of the lens holder, the light source is positioned on the end portion of the heat sink facing the recess of the lens, and the light source is in thermal communication with the heat sink.

***Conclusion***

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wiese (US 5,775,792), Barnett et al. (US 6,541,800) and Parkyn (US 6,560,038) show lighting systems having lens with light entrance recesses.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gunyoung T. Lee whose telephone number is (571) 272-8588. The examiner can normally be reached between 7:30 - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra L. O'Shea can be reached at (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GTL  
7/25/2006



RENEE LUEBKE  
PRIMARY EXAMINER